<u>REMARKS</u>

Claims 1, 4, 6-9, 12, 13, 15-18, and 21-35 are pending.

Claims 2-3, 5, 10-11, 14, and 19-20 have been cancelled.

In the Office Action dated March 8, 2010, claims 1, 7, 9, 10, 16, 18 and 22 were rejected on the grounds of non-statutory double patenting over claims 1, 3, 4, 10, 13, and 16 of U.S. Patent No. 7,146,353 in view of Hill (U.S. Patent Publication No. 2004/0267897) and further in view of Borowsky (U.S. Patent No. 6,321,317); claims 1, 4, 6-10, 12-13, 15-19, 21-23, and 28-35 were rejected under 35 U.S.C. § 102(e) as anticipated by Garg (U.S. Patent Publication No. 2005/0021530); claims 1, 4, 9-10, 12-13, 18-19, 28, and 32 were rejected under 35 U.S.C. § 103(a) as unpatentable over Hill in view of Borowsky; claims 6, 15, and 21 were rejected under 35 U.S.C. § 103(a) as unpatentable over Hill, Borowsky, and further in view of Varanasi (U.S. Patent No. 7,443,799); claims 7-8, 16-17, and 22-23 were rejected under 35 U.S.C. § 103(a) as unpatentable over Hill, Borowsky, Varanasi and further in view of Das (U.S. Patent Publication No. 2005/0172291); claims 24-27 were rejected under 35 U.S.C. § 103(a) as unpatentable over Hill, Borowsky, and further in view of Husain (U.S. Patent Publication No. 2003/0126260); and claims 29, 31, 33, and 35 were rejected under 35 U.S.C. § 103(a) as unpatentable over Hill, Borowsky, and further in view of Das; and claims 30 and 34 were rejected under 35 U.S.C. § 103(a) as unpatentable over Hill, Borowsky, and further in view of Lee ("Routing Subject to Quality of Service Constraints in Integrated Communication Networks").

<u>REJECTION UNDER 35 U.S.C. § 102 OVER GARG</u>

Independent claim 1 has been amended to recite the following subject matter:

wherein the required resources of each application specify a type of servers on which the application can be hosted, the type of servers being based on attributes of the servers including attributes relating to processor architecture and processing power, wherein the servers are part of the processing resources.

Support for the foregoing amendment of claim 1 can be found at least in the following passages of the present application: ¶¶ [0027], [0030], [0032]. Similar support exists for similar amendments made to independent claims 9 and 18.

It is respectfully submitted that claim 1 is not anticipated by Garg. Garg does not disclose determining, for each application, required resources of the application, where the required resources of each application specify a type of servers on which the application can be hosted, the type of servers being based on attributes of the servers including attributes relating to processor architecture and processing power.

Since Garg fails to disclose at least one element of claim 1, Garg does not anticipate the subject matter of claim 1.

Independent claims 9 and 18 are similarly allowable over Garg.

REJECTION UNDER 35 U.S.C. § 103 OVER HILL IN VIEW OF BOROWSKY

It is respectfully submitted that the obviousness rejection of claim 1 over Hill and Borowsky is erroneous.

To make a determination under 35 U.S.C. § 103, several basic factual inquiries must be performed, including determining the scope and content of the prior art, and ascertaining the differences between the prior art and the claims at issue. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459 (1965). Moreover, as held by the U.S. Supreme Court, it is important to identify a reason that would have prompted a person of ordinary skill in the art to combine reference teachings in the manner that the claimed invention does. *KSR International Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1741, 82 U.S.P.Q.2d 1385 (2007).

Hill describes a method for regulating resource usage by a plurality of programs running on a plurality of machines, where the method includes providing a resource policy specifying allocation of resources among the programs, and allocating resources to each program based upon the resource policy and resource information exchanged among the machines. Hill, Abstract.

However, nowhere does Hill provide any teaching or hint of determining the assigned subset of available resources for each application based on a linearized objective function that reduces communication delays between resources of the subset of the

11

available resources in conformance with bandwidth capacity requirements of the application and in conformance with network bandwidth limitations, where the linearized objective function includes the linear combination of variables.

The foregoing point was conceded by the Office Action. 03/08/2010 Office Action at 11. Instead, the Office Action cited Borowsky, and specifically to the following passages of Borowsky, as purportedly disclosing the claimed subject matter conceded to be missing from Hill: Abstract; column 1, lines 35-40; column 2, lines 1-27; column 4, lines 37-51. *Id.* The Abstract of Borowsky refers to multi-dimensional constraint optimization in a storage system configuration, in which the objective function for a storage system is determined, workload units are selected and their standards are determined, and the storage devices are selected and their characteristics are determined. According to the Abstract of Borowsky, the selections and determinations are used by a constraint-based solver through constraint integer optimization to generate an assignment plan for the workload units to the storage devices.

The column 1 passage of Borowsky cited by the Office Action states that the overall assignment plan is evaluated based on an objective function, which may be to minimize the cost of the storage system, to maximize the performance of the storage system, to balance the load, to maximize availability, or to minimize the physical footprint.

The cited column 2 passage of Borowsky notes that constraints can include both linear constraints as well as non-linear constraints. Significantly, note that Borowsky states that constraints are not all linear. Borowsky, 2:18-19; 2:67-3:2. The cited column 4 passage of Borowsky refers to assignment of workload units to a storage device, based on constraints. The goal of Borowsky is to assign a plurality of workload units to a plurality of storage devices. Borowsky, 5:8-11. Although Borowsky refers to using linear relaxation (*id.*, 5:35) and treating non-linear consumable constraints as linear constraints (*id.*, 6:62-63), there is no teaching or hint in Borowsky regarding determining the assigned subset of available resources for each application based on a linearized objective function **that reduces communication delays between resources of the subset of the available resources** in conformance with bandwidth capacity requirements of the application and in conformance with network bandwidth limitations.

12

The primary reference, Hill, also fails to disclose the foregoing claimed subject matter. Although Hill refers to determining communication resources at computers, exchanging bandwidth information amongst the computers, and scheduling communications based upon policy and bandwidth information (Hill, ¶ [0023]), there is no teaching or hint in Hill regarding determining an assigned subset of available resources for each application based on any objective function that reduces **communication delays between resources of the subset of the available resources**.

Moreover, neither Hill nor Borowsky provides any teaching or hint that required resources of each application specifies a type of servers on which the application can be hosted, where the type of servers is based on attributes of the servers including attributes relating to processor architecture and processing power. In view of the foregoing, it is clear that even if Hill and Borowsky could be hypothetically combined, the hypothetical combination of the references would not have led to the claimed subject matter.

In addition, in view of the significant differences between the claimed subject matter and the teachings of Hill and Borowsky, no reason existed that would have prompted a person of ordinary skill in the art to combine the teachings of the references to achieve the claimed subject matter.

Claim 1 is therefore non-obvious over Hill and Borowsky.

Independent claims 9 and 18 are similarly allowable over Hill and Borowsky.

REJECTION UNDER 35 U.S.C. § 103 OVER HILL, BOROWSKY, AND HUSAIN

Claim 26 has been amended from dependent form to independent form, with the scope of claim 26 remaining **unchanged**.

Claim 26 was rejected as purportedly obvious over Hill, Borowsky, and Husain. With respect to claim 26, the Office Action referred to the rejection of claim 24. 03/08/2010 Office Action at 17. With respect to claim 24, the Office Action conceded that Hill and Borowsky do not disclose the following element of claim 26:

> wherein determining the assigned subset of available resources for each application is based on a linearized objective function that reduces communication delays between resources of the subset of the available resources in conformance with bandwidth capacity requirements of the application and in conformance with network bandwidth limitations,

> wherein the linearized objective function includes a linear combination of variables; and

Id. Instead, the Office Action cited Husain, and specifically, the following passages of Husain, as purportedly disclosing the subject matter of claim 26 conceded to be missing from Hill and Borowsky: ¶ [0011]; claim 3; Abstract. Paragraph [0011] of Husain refers to collection of data relating to computers, where the collected data may relate to processor type and processor speed. Claim 3 of Husain also refers to collecting data relating to processor type and processor speed. Collecting data of computers that include processor type and processor speed is completely unrelated to the subject matter of claim 26, where the required resources **of each application** is specified in resource requirements that include attributes of the processing resources, where the attributes specify processor type and processor speed. In Husain, the collected data includes attributes of computers—collecting data regarding attributes of computers has nothing to do with resource requirements of an application.

Therefore, even if Hill, Borowsky, and Husain could be hypothetically combined, the hypothetical combination of the references would not have led to the subject matter of claim 26.

Claim 26 is therefore non-obvious over the cited references.

Dependent claim 24 is also similarly allowable over Hill, Borowsky, and Husain.

OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTION OVER U.S PATENT NO. 7,146,353 IN VIEW OF HILL AND BOROWSKY

In view of the arguments presented above with respect to the rejection over Hill and Borowsky, and in view of the amendments of the claims, it is respectfully submitted that the obviousness-type double patenting rejection of the claims over U.S. Patent No. 7,146,353 in view of Hill and Borowsky has been overcome. Therefore, withdrawal of the obviousness-type double patenting rejection is respectfully requested.

CONCLUSION

Dependent claims are allowable for at least the same reasons as corresponding independent claims. In view of the allowability of base claims, the obviousness rejections of dependent claims have been overcome.

The Commissioner is authorized to charge any additional fees and/or credit any overpayment to Deposit Account No. 08-2025 (200313904-1).

Respectfully submitted,

Date: <u>June 8, 2010</u>   <u>   /Dan C. Hu/   </u>
Dan C. Hu
Registration No. 40,025
TROP, PRUNER & HU, P.C.
1616 South Voss Road, Suite 750
Houston, TX 77057-2631
Telephone: (713) 468-8880
Facsimile: (713) 468-8883